

USSR

LOGUNOV, A. A., Teoreticheskaya i Matematicheskaya Fizika, Vol 9, No 1, Oct 71,
pp 3-43

production were studied as functions of one or two angular coordinates. Scattering amplitudes were investigated for their analytic properties in both elastic and inelastic processes as functions of scattering angles and as functions of the impulse transfer. The latter case was studied on the basis of the general principles of field theory. It was shown how the range of analyticity (depending on $\cos \theta$) of the differential cross section of an arbitrary inelastic process can be expanded, making it possible to obtain restrictions on the behavior of the inelastic cross section of differential forward scattering at high energy. The character of the dependence of a partial wave on the orbital moment within the range of high values of the moment was appraised.

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1/2 010 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--SOME RESULTS OF COMPLEX TUNING AND START UP OF THE IHEP 70 GEV
PROTON SYNCHROTRON -U-
AUTHOR-(03)-ADO, YU.M., ZHURAVLEV, A.A., LOGUNOV, A.A.
COUNTRY OF INFO--USSR
SOURCE--AT. ENERG. (USSR): 28: 132-8 (FEB 1970).
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--PROTON ACCELERATOR, PARTICLE PHYSICS, SYNCHROTRON/(U)IHEP
PROTON ACCELERATOR
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3004/0755 STEP NO--UR/0089/70/028/000/0132/0138
CIRC ACCESSION NO--AP0131350
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0131350

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PROCESS AND CHARACTER OF WORKS ON COMPLEX TUNING AND START UP OF THE ACCELERATOR ARE DESCRIBED. FEATURES AND METHODS OF TUNING OF THE MAIN ACCELERATOR SYSTEMS ARE BRIEFLY DISCUSSED (RING ELECTROMAGNET, POWER SUPPLY SYSTEM, CORRECTION SYSTEM, INJECTION SYSTEM, VACUUM SYSTEM, AND RADIOTECHNICAL SYSTEMS). THE MAIN RESULTS OBTAINED DURING THE ACCELERATOR TUNING ARE REPORTED. FACILITY: INST. OF THEORETICAL AND EXPERIMENTAL PHYSICS, MOSCOW.

UNCLASSIFIED

Theoretical Physics

USSR

YEZHELA, V. V., LOGUNOV, A. A., and MESTVIRISHVILI, M. A., Institute of High-Energy Physics

"Unitary Condition and Decrease in Differential Cross-Section of Multiple Production Process With Energy Increase"

Moscow, Teoreticheskaya i Matematicheskaya Fizika, Vol 6, No 1, Jan 71, pp 42-54

Abstract: The article studies the differential cross section of multiple production $d\sigma/d\cos\Theta d\varphi$, where Θ is the angle of escape of particle C , relative to the direction of the relative momentum $\mathbf{p}$ of colliding particles in the center-of-mass system and φ is the angle between planes passing through vectors $\mathbf{p}$, $\mathbf{p}_{c1}$ and $\mathbf{p}_{c2}$. For this purpose use is made of the integral expression

$$F_m(s, \cos\theta, \xi_l) = \frac{1}{2\pi i} \oint \frac{dz}{z} \frac{G_m(s, z, \xi_l)}{z^{|m|}} \left(\cos \frac{\theta}{2} + \sin \frac{\theta}{2} \cdot t \right)^{|m|},$$

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YEZHELA, V. V., et al., Teoreticheskaya i Matematicheskaya Fizika, Vol 6, No 1, Jan 71, pp 42-54

where

$$t = \frac{z - \cos \theta - \sqrt{R}}{i \sin \theta}, \quad R = z^2 - 2z \cos \theta + 1,$$

for the amplitude of the inelastic process. This expression is a generalization of the integral expression for scattering amplitude obtained by KINOSHITA-LOEFFEL-MARTIN (Phys. Rev., 135B, 1464, 1964). In the particular case in which the projection of a moment equals zero the integral expression changes to the KINOSHITA-LOEFFEL-MARTIN expression.

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YEZHELA, V. V., et al., Teoreticheskaya i Matematicheskaya Fizika, Vol 6, No 1, Jan 71, pp 42-54

On the basis of the above integral expression it is shown, by means of the condition of unitarity and analyticity, that the multiple production cross section decreases with energy increase, and the upper bound of its decrease is found: viz.

$$\frac{d\sigma_{int}}{d\cos\theta d\varphi} \leq \frac{\text{const}}{s} \frac{\ln^{12}(s/s_0)}{(\sin\theta)^6 (\sin\varphi)^6}.$$

The unitarity condition is an important element for obtaining the above inequality. To obtain the upper bound it is assumed, in using the unitarity condition, that the partial waves making a contribution to the multiple production process reach saturation.

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USSR

YEZHELA, V. V., et al., Teoreticheskaya i Matematicheskaya Fizika,
Vol 6, No 1, Jan 71, pp 42-54

The authors thank N. N. BOGOLYUBOV, G. G. VOLKOV, S. S.
GERSHTEYN, R. M. MURADYAN, A. I. OKSAK, YU. G. STROGANOV, G. L.
RCHEYLISHVILI, A. N. TAVKHELIDZE, and O. A. KHRUSTALEV for fruit-
ful discussions.

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USSR

ADO, YU. M., ZHURAVLEV, A. A., LOGUNOV, A. A., MYAE, B. A., NAUMOV, A. A., PISAREVSKIY, V. YE., ROGOZINSKIY, V. G., TUSHABRAMISHVILI, K. Z., SHUKAYLO, I. A., BOYKO, S. N., KOMAR, YE. G., KALYSHEV, I. F., MOZIN, I. V., MONOSZON, N. A., MCZALEVSKIY, I. A., SPEVAKOVA, F. M., STOLOV, A. M., TITOV, V. A., VODOP'YANOV, F. A., KUZ'MIN, A. A., KUZ'MIN, V. F., MINTS, A. L., RUBCHINSKIY, S. M., UYAROV, V. A., GUTNER, B. M., ZALMANZON, V. B., PROKOP'YEV, A. I., and TEMKIN, A. S.

"Some Results of the Overall Adjustment and Start-up of the 70-GeV Proton Synchrotron of the Institute of High-energy Physics"

Moscow, Atomnaya Energiya, Vol 28, No 2, Feb 70, pp 132-138

Abstract: The physical part of the plan for the 70-GeV proton synchrotron was executed by the Institute of Theoretical and Experimental Physics. The electromagnet with feed system, the vacuum chamber, and the injection devices were developed at the Scientific Research Institute of Electrophysical Apparatus imeni D. V. Yefremov. The radio-electronic systems for acceleration process control and generation of

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ADO, YU. M., et al., Atomnaya Energiya, Vol 28, No 2, Feb 70, pp 132-138

the accelerating field, as well as the radiotechnical measurement and beam observation systems, were developed by the Radiotechnical Institute of the Academy of Sciences USSR. "Tyazhpromelektroproyekt" [State Planning Institute for the Planning of Electrical Equipment for Heavy Industry] designed the general-purpose electrotechnical devices and cable connections. The plan for the construction complex of the accelerator was developed by the State All-Union Planning Institute. The construction of the accelerator was under the general supervision of the State Committee for the Use of Atomic Energy USSR. The adjustment of individual systems and the overall adjustment and start-up of the accelerator were carried out by the Institute of High-energy Physics and the developers of the accelerator systems. The basic beam work was done by the Institute of High-energy Physics with the participation of the Radiotechnical Institute. The construction of the accelerator was begun in 1960, and all the basic construction and assembly work was completed at the beginning of

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ADO, YU. M., et al., Atomnaya Energiya, Vol 28, No 2, Feb 70, pp 132-138

1967. At the initial stage of construction, before the formation of the Institute of High-energy Physics in 1963, the work was coordinated by the Institute of Theoretical and Experimental Physics. The linear accelerator injector was started on 28 July 1967, the operation of the individual systems was adjusted by September 1967, and the physical start-up of the accelerator was accomplished on 14 October.

A description is given of the work done to adjust the annular electromagnet (including the electromagnet cooling and feed systems), the injection system (consisting of matching channel and injection device), the vacuum system, the radioelectronic system (including the accelerating field generation system, the acceleration process control system, and the radiotechnical measurement system), and the beam observation system (which provides for beam observation in the first revolution and during acceleration). In the physical start-up of the accelerator the main efforts were directed towards obtaining accelerated protons of the planned energy, and the problem of obtaining high

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ADO, YU. M., et al., Atomnaya Energiya, Vol 28, No 2, Feb 70, pp 132-138

intensity of the accelerated proton was not raised.

The article gives a listing of the principal parameters of the proton synchrotron, as well as a schedule of the individual stages of the start-up of the accelerator. Photographs include a view of the part of the ring hall in the beam injection area and a general view of the hall of ignitron rectifiers.

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Acc. Nr.: AM0046191

Ref. Code: UR0000

Bogolyubov, N. N.; Logunov, A. A.; Todorov, I. T.

Principles of Axiomatic Approach in Quantum Field Theory (Osnovy aksiomaticheskogo podkhoda v kvantovoy teorii polya) Moscow, Nauka, 424 pp (SL:1904)

TABLE OF CONTENTS:

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2	General Principles of Relativistic Quantum Theory	83
3	Local Quantized Field and Whiteman Functions	171
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AM0046191.

The monograph contains a systematic presentation of various trends
of the axiomatic approach...

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USSR

UDC 612.5-087.86

LOGUNOV, A. D., AZHAYEV, A. N., and KOSHELEVA, O. S.

"Determination of the Coefficients of Mixing for Calculation of the Average Temperature of the Human Body"

Moscow, Gigiyena i Sanitariya, No 3, Mar 73, pp 72-75

Abstract: In experiments on humans placed for 1-6 hrs into a chamber with an air temperature of -40, -10, 5, 25, 30, 35, or 40°, the heat flow between the body and the surrounding air, the temperature of the skin, and the rectal temperature were determined. The subjects on whom the experiments were carried out were nude or dressed in summer, winter, or between-season clothing. On the basis of the experimental data obtained, formulas for the coefficients of mixing corresponding to the temperature of the skin and the rectal temperature under various conditions of heat exchange were derived. Nomographs were plotted which indicate 1) the relation between the coefficient of mixing for the skin temperature and the thermal insulation of body tissues; 2) the relation between the insulation of body tissues and the inner temperature gradient of the body; 3) the relation between the coefficients of mixing for the rectal and skin temperatures and the rectal-skin temperature gradients and also between these coefficients and the

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USSR

LOGUNOV, A. D., et al., Gigiyena i Sanitariya, No 3, Mar 73, pp 72-75

thermal insulation of the body tissues. With an increasing difference between the rectal and median skin temperature, the degree of thermal insulation of the body tissues increased, while decreasing with a reduction of the inner temperature gradient. At low outside temperatures the thermal insulation of the body surface increased. It decreased at high outside temperatures.

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USSR

UDC 669.017:539.4+669.27/29
SAVITSKIY, YE. M., TYLKINA, M. A., KONIYEVA, L. Z.,
LOGUNOV, A. V., and PETRUSHIN, N. V., Institute of Metallurgy
imeni A. A. Baykov

"Investigation of Carbon Solubility in Mo+45%Re Alloy"

Ordzhonikidze, Izvestiya Vysshikh Uchebnykh Zavedeniy,
Tsvetnaya Metallurgiya, No 6, 1973, pp 125-129

Abstract: The solubility of C in the Mo+45%Re alloy was investigated by measuring the electric resistance. The derived experimental data show that the solubility of C in the Mo+45%Re alloy comprises 0.035% at 1550° and that it comes up to 0.05% at 1800°. In the presence of 45%Re, the solubility of C in Mo rises 25% at 1800° and 75% at 1550°. The presence of 0.035%C in the solid solution increases the electric resistance ρ of the alloy by $7.5 \mu\Omega \cdot \text{cm}$; the presence of carbides in the alloy at a C content up to 0.265% has no noticeable influence on the level of its ρ . The temperature coefficient of ρ of Mo+45%Re alloy can be considered nearly constant and equal to $2.9 \cdot 10^{-3} \mu\Omega \cdot \text{cm} \cdot \text{deg}^{-1}$; it decreases at transition into the 0.035%C solid solution. The ρ -curve of the Mo+45%Re+0.4%C alloy shows a break at 1250-1260°. Three figures, one table, 11 bibliographic references.

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USSR

UDC 669.15.018.44

IANSKAYA, K. A., and LOGUNOV, V. V.

"Recrystallization Processes in EP503 and EI439 Ferritic-Class Steels"

Sb. tr. TzNII chern. metallurgii (Collection of Works of Central Scientific Research Institute of Ferrous Metallurgy), 1970, vyp. 77, pp 18-22 (from RZh-Metallurgiya, No 3, Mar 71, Abstract No 31622 by authors)

Translation: The article considers the process of recrystallization of hardened steels of the ferritic class EP503 (0.1% C, 2.35% Cr, 0.3% V, 5 and 8% W, 0.1 and 0.7% Mo, 1.2 and 1% Nb) and EI439 (0.1% C, 25% Cr). Recrystallization temperature intervals are established for the investigated steels as a function of strain percent. It is shown that steel with 8% W (EP503), hardened with a Laves phase (Fe_2W), has a recrystallization temperature interval approximately 250° higher than steel with 25% Cr. This interval is in the $900-1000^{\circ}$ range. The Laves phase is practically unsegregated with a decrease in the W content of steel EP503 to 5%, which results in a lower Temperature for the beginning and end of recrystallization. However, this interval is at higher temperatures than in steel alloyed with 25% Cr (EI439). Two illustrations. Two tables. Bibliography with three titles.

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USSR

UDC 669.1.017.001.5

LANSKAYA, K. A., and LOGUNOV, V. V.

"Recrystallization Processes in Ferritic Type EP503 and EI439 Steel"

Spetsial'nyye Stali i Splavy [Special Steels and Alloys--Collection of Works],
No 77, Metallurgiya Press, 1970, pp 18-22

Translation: The process of recrystallization of hardened and unhardened ferritic EP503 and EI439 steels is studied.

The temperature intervals of recrystallization are established for the steels studied as functions of the degree of deformation. It is demonstrated that the steel with 8% W (EP503), hardened by the Lawes phase (Fe_2W) has a recrystallization temperature interval approximately 250° higher than the steel with 25% Cr. This interval lies between 900 and $1,000^\circ C$. As the content of tungsten is decreased to 5% in EP503 steel, the Lawes phase is practically not separated, which causes a decrease in the temperature of beginning and ending of recrystallization, although this interval is at higher temperatures than in the steel alloyed with 25% Cr (EI439). 2 figures; 2 tables; 3 biblio. refs.

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AP0000087

UR 0289

PRIMARY SOURCE: Izvestiya Sibirskogo Otdeleniya, AN SSSR,
Seriya Khimicheskikh Nauk, Nr 12(162), Nr 5,
pp 131-136

A. T. Logvinenko,
G. D. Urvvaeva, A. S. Tretyakova

INVESTIGATION OF THE PROCESS
OF $12\text{CaO} \cdot 7\text{Al}_2\text{O}_3$ HYDRATION IN THE PRESENCE OF ORGANIC

The effect has been studied of glucose, saccharose, fructose, xylose and larch extract on $12\text{CaO} \cdot 7\text{Al}_2\text{O}_3$ hydration. It was found that the addition of sugars in the range of up to 0.25% does not change its ability to interact with water and does not affect the ability of hydroaluminates formed to crystallization and recrystallization. When these additions are increased to 0.6%, the crystallization of the new species is substantially of 0.015-0.6% inhibit the conversion of hexagonal hydroaluminates into the cubic form.

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AP9053086

UR 0289

PRIMARY SOURCE: Izvestiya Sibirskogo Otdeleniya, AN SSSR,
Seriya Khimicheskikh Nauk, Nr 12(162), Nr 5,
PP 123-180

~~A. T. Logvinenko,~~
G. D. Uryvayeva, A. S. Tretyakova

THE EFFECT OF ORGANIC ADDITIVES
ON THE HYDRATION OF $3\text{CaO} \cdot \text{Al}_2\text{O}_3$

Using physico-chemical methods of analysis, the effect has been studied of glucose, saccharose, fructose, xylose, and aqueous larch extract on the hydration of $3\text{CaO} \cdot \text{Al}_2\text{O}_3$. The above-mentioned additives change the quantitative correlation of the phases of the new species, as they inhibit the process of hexagonal calcium hydroaluminate recrystallization to the cubic form.

In the presence of 0.6% of organic additives the main products of C_3A hydration are hexagonal calcium hydroaluminates of the C_4AH_3 and C_2AH_3 type.

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1/2 007 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--ON THE SYNTHESIS OF C SUB5 A SUB3 IN PRESENCE OF CR SUB2 O SUB3 -U-
AUTHOR--(03)-MASILY, YE.N., URYVAYOVA, G.D., LOGVINENKO, A.T.
COUNTRY OF INFO--USSR
SOURCE--IZVESTIYA SIBIRSKOGO OTDELENIYA AKADEMII NAUK SSSR, NO 4, SERIYA
KHIMICHESKIKH NAUK, 1970, NR 2, PP 168-171
DATE PUBLISHED--70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--CHROMIUM OXIDE, CHEMICAL SYNTHESIS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1993/0572 STEP NO--UR/0289/70/000/000/0168/0171
CIRC ACCESSION NO--AP0113463
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0113463

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF 0.3-15PERCENT CR SUB2 O SUB3 ON THE SYNTHESIS OF C SUB5 A SUB3 WAS STUDIED. IT WAS FOUND THAT THE PRESENCE OF 0.8-1.1PERCENT CR SUB2 O SUB3 CAUSED THE BREACH OF C SUB5 A SUB3 STRUCTURE BECAUSE OF AID SUB4 IN EQUILBIUM CRO SUB4 SUBSTITUTION. WHEN 10 AND 15PERCENT CR SUB2 O SUB3 WAS ADDED THE MANY PHASES (C SUB5 A SUB3, CACR SUB2 O SUB7, CR SUB2 O SUB3, AND C SUB5 A SUB3) WAS FOUND. FACILITY: INSTITUT FIZIKO-KHIMICHESKIKH OSNOV PERERABOTKI MINERAL'NOGO SYR-YA SO AN SSSR, NOVOSIBIRSK.

UNCLASSIFIED

MORALEV, S. A., TABARNYY, V. G., MOLCHANOV, A. A., LESHCHENKO, YU. I., and LOG-
VINENKO, N. P. UDC 621.396.6-181.48

"A System for the Machine Design of BIS (Large Scale Integrated Circuits) Based
on MOS-Transistors"

Elektron. prom-st'. Nauchn-tekhn. sb. (Electronics Industry. Collected Scientific-
Technical Articles), 1972, No 2, pp 44-49 (from RZh-Radiotekhnika, No 11, Nov 72,
Abstract No 11 B225)

Translation: The proposed machine design system makes it possible to automate the
basic stages of the design and development of MOS type, large integrated circuits.
This includes the following: from the statement of the technical specifications in
the form of functional circuits with an inventory of the circuit-technical and
technological limitations to the representation of the topology of the microcircuit
in the form of a geometric drawing, along with the corresponding code on perforated
tape. The information recorded on the perforated tape is used for the automated
production of photopatterns. Resume.

USSR

UDC 620.195

TOLSTAYA, M. A., KHVOROSTUKHIN, L. A., LOGVINENKO, V. V., SOLODKINA, V. F.,
and MUKHINA, M. G., Moscow Aviation Technological Institute

"The Effect of Diamond Smoothing of the Surface of Kh18N9T Steel on its
Corrosion and Electrochemical Behavior"

Moscow, Zashchita Metallov, Vol 9, No 1, Jan-Feb 73, pp 16-21

Abstract: An experimental study was made of the corrosion and electrochemical behavior of relaxed specimens of 1Kh18N9T steel after processing their surfaces by the diamond smoothing method. To correlate properties of differently processed surfaces of 1Kh18N9T steel, smoothed and burnished specimens were tested together. The corrosion variations of the tested specimens in 3% NaCl and their anodic polarization curves in solutions of NaCl (0.1 and 3%) and H₂SO₄ are discussed by reference to diagrams. The surface of 1Kh18N9T steel subjected to diamond smoothing was found to possess, in comparison with burnished specimens, a considerably higher anodic polarizability and resistance to general pitting corrosion. A mechanism of this phenomenon is suggested. The experimental data prove conclusively the increased stability of the passive condition of 1Kh18N9T steel in corrosive media after finishing treatment of its surface with a spherical diamond tip. Four figures, one table, eighteen bibliographic references.

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USSR

UDC 539.67

SHTRAKHMAN, K. M., FIGUZOV, Yu. V., and LOGVINENKO, Yu. S.

"Internal Friction and Isothermic Diffusion in a Copper-Zinc System"

Sb. "Vnutrenneye treniye v metallicheskih materialakh" (Internal Friction in Metallic Materials), Moscow, Izd-vo "Nauka," 1970, pp 165-169

Abstract: With increasing time of diffusion isothermic annealing of copper (from 19 to 100 hours), peaks appear on the internal friction temperature dependence curves at 260, 290, and 330°C. The appearance of peaks is related to the relaxation process in γ - and ϵ -phases formed with isothermic diffusion, as well as in the α -solid solution. 3 figures, 4 references.

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USSR

UDC 621.762.2.001:669.3

AKSENOV, G. I., LOGVINOV, A. N., and DROZDOV, I. A.

"High-Temperature Metallographic Study of the Cracking Process During the Reduction of Cupric Oxide"

V sb. Novyye napravleniya razvitiya vysokotemperaturn. metallogr. (New Trends in the Development of High-Temperature Metallography -- Collection of Works), Moscow, "Mashinostroyeniye" (Machine-Building), 1971, pp 148-151 (from RZh-Metallurgiya, No 1, Jan 72, Abstract No 1G238 by authors)

Translation of Abstract: The article describes the use of the methods of high-temperature metallography to study the peculiarities in the change of the surface of Cu scale reduced in H_2 at various temperatures (from 500 to 800°). The formation of a network of cracks in the Cu is due to the consequences of volume changes as a result of structural transformations occurring during Cu scale reduction and the concomitant formation of the metallic phase. Crack initiation is accelerated with a rise in the rate at which diffusion processes take place. One illustration. Bibliography with three titles.

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USSR

UDC 621.762.5.001

AKSENOV, G. I., LOGVINOV, A. N., and DROZDOV, I. A.

"Analysis of the Kinetics of Compacting Copper Metal Powders During Sintering in the Free-Fill State"

Tr. Kuybyshev. aviats. in-t (Works of Kuybyshev Aviation Institute), 1970, vyp. 42, pp 3-8 (from RZh-metallurgiya, No 3, Mar 71, Abstract No 3G344 by I. Brokhin)

Translation: A study is made of the kinetics of the compacting process during the sintering of freely filled copper powders (electrolytic and hydrogen-reduced at 250 and 500°). Copper powder was sintered in a dissociated NH₃ atmosphere at 900, 950, 1000, and 1050° with varying holding times. Powder density was determined before and after sintering. The compacting of specimens is due to diffusion processes whose activation energy and rate depend on the defectiveness of the crystal lattice and the development of specific surface. The diffusion coefficient for electrolytic copper powder and for that reduced at a low temperature is more than one order of magnitude higher than for copper powder reduced at a high temperature. The values of the diffusion coefficient for powders of the first type are close to the 1/2

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AKSENOV, G. I., et al., Tr. Kuybyshev. aviats. in-t, 1970, vyp. 42, pp 3-8

coefficient of surface diffusion of copper, which indicates the great part played by surface diffusion in the compacting process of freely filled powders. Four illustrations. Two tables.

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ACC. NR.

APC0049305

Abstracting Service:
CHEMICAL ABST. 5-70

Ref. Code

4R 0226

103086y High-temperature metallographic investigation of the sintering of reduced copper powders. Aksentov, G. I.; Logvinov, A. N.; Drozdov, I. A. (Kuibyshev, Aviat. Inst., Kuibyshev, USSR). *Porosh. Mat.* 1970, 10(1), 45-51 (Russ). By using high-temp. metallography, the sintering of metallic reduced Cu powders was studied. The temp. range between the nucleation and the growth of the metallic contact between the powder particles depends on their redn. temp. On the basis of the data on the growth of the contacts, the coeffs. of the surface self-diffusion and the activation energy are quant. detd. The effective surface self-diffusion coeff. of the low-temp. reduced Cu powder is 1 order of magnitude higher than for the Cu powder reduced at a high temp. The effective activation energy value for the growth of the contacts between the reduced powders of Cu does not remain const., but is dependent on the sintering temp. With increasing sintering temp. the effective activation energy value increases due to the increase in the degree of equil. of the structure of the surface layers of the powders.

S. A. Mersol

REEL/FRAME

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Econ

HIGH TEMPOS IN DEVELOPMENT OF THE SOVIET ECONOMY

Article by L. L. Lomonosov, Director of Economic Planning, USSR, Ministry, Moscow, No. 2, January 1972, pp. 7-9.

If one looks in a dictionary he will find the word "tempo" is explained usually as the rate at which some undertaking or task takes place. Tempos of economic development reflect the rate of growth of production and the speed with which it builds up strength.

The Soviet people are happy with the high tempos in public socialist production, seeing in this due implementation of the economic policies of the Communist Party which are directed toward carrying out fundamental tasks in strengthening the might and defensive capability of the country and steadily raising the level of well-being and culture of its workers and all people inhabiting the brotherly Union of the USSR. These policies have found explicit clear reflection in the 1967-1970 plan for the development of the economy of the USSR for 1971-1975 which was approved by the November 1970 Plenum of the Central Committee of the CPSU and since 1971 by the Supreme Soviet of the USSR. It indicates that in its economic policies, guided by the decisions of the 24th Congress, the CPSU plays a particular concern for maintaining high tempos in development of the economy.

An analysis of the three decades of the Soviet Union years which have passed since the Ninth Five-Year Plan during the years in the growth of social production have opened up the high tempos in the development of the economy. For the Ninth Five-Year Plan are in complete keeping with the directives of the 24th Congress of the CPSU. Maintaining such a consistent pace to solution of the main task of the current five-year plan.

SPR 53374, 7th March 1972, Lomonosov, L.

USSR

UDC: 621.317.39: 543.275.3.08

TURUBAROV, V.I., PODOL'SKIY, A.A., KALAKUTSKIY, L.I.,
LOGVINOV, L.M., POPOV, B.I., RUMYANTSEV, V.V. and
VORONOV, A.F.

"High-Sensitivity Device for Continuous Measurement of Dust Concentration in Biosphere"

Sb. Fiz. metody i vopr. metrol. biomed. izmereniy (Symposium on Physics Methods and Biomedical Metrology Problems) Moscow, 1972, pp 288-289 (from Referativnyy Zhurnal-Metrologiya i Izmeritel'naya Tekhnika, No 8, 1972, Abstract No. 8.32.1007 by V.S.K.)

Translation: The design and operating principle are described of a continuous-action, electronic, induction dustmeter, developed by the Leningrad Aviation Instrument Building Institute jointly with the Kuybyshev Aviation Institute. The dust concentration measurement method is based on the relation between the size of aerosol particles and their charges received in the corona discharge field. This type

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TURUBAROV, V. I., et al., Sb. Fiz. metody i vopr. metrol. biomed. izmereniy, 1972, pp 288-289

dustmeter measures the surface concentration, therefore the change in dispersion concentration does not cause errors in dust concentration count. The dustmeter can be also calibrated by the weighing method with constant dispersion concentration and variation of weight concentration. Several modifications of electronic dustmeters characterized by sensitivity and range have been developed. The technical characteristics of EIP-3 dustmeter are: sensitivity, 10^{-2} mg/m³; weight, 5 kg; power consumption, 10 w; dynamic concentration range, 10^3 ; overall dimensions, 280 x 190 x 80 mm. Test results of electronic induction dustmeters are presented.

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1/2 008

UNCLASSIFIED

PROCESSING DATE--02OCT70

TITLE--THE PERSEY 3 HELPS FISHERMEN, SCIENTIFIC RESEARCH SHIP PERSEY 3
AIDS FISHERMEN NEAR LABRADOR -U-

AUTHOR--LOGVINOV, V.

COUNTRY OF INFO--POLAND, USSR, ROMANIA, EAST GERMANY

SOURCE--MOSCOW, PRAVDA, 16 MARCH 1970, P 4

DATE PUBLISHED--16MAR70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY, MECH., IND., CIVIL AND
MARINE ENGR, BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--OCEANOGRAPHIC SHIP, ICHTHYOLOGY, MARINE FISHERY/(U)PERSEY 3
OCEANOGRAPHIC SHIP

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--1989/1652

STEP NO--UR/9012/70/000/000/0004/0004

CIRC ACCESSION NO--AN0108050

UNCLASSIFIED

2/2 008

CIRC ACCESSION NO--AN0108050
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--02OCT70

RECEIVED A TELEGRAM FROM THE SCIENTIFIC RESEARCH SHIP "PERSEY 3", WHICH IS NOW LOCATED IN THE REGION OF SOUTHERN LABRADOR, WHICH STATED THAT THE SHIP WOULD COMBINE ITS RESEARCH WORK WITH THE TASK OF PROVIDING PRACTICAL ASSISTANCE TO POLISH FISHERMEN. K. G. KONSTANTINOV, HEAD OF THE NORTH ATLANTIC LABORATORY OF THE POLAR INSTITUTE, COMMENTED ON THIS TELEGRAM: "FOR A LONG TIME THERE HAS BEEN CLOSE COOPERATION BETWEEN ICHTHYOLOGISTS AND FISHERMEN OF BULGARIA, THE GERMAN DEMOCRATIC REPUBLIC, POLAND, ROMANIA AND THE SOVIET UNION. EACH YEAR WE MEET IN MURMANSK, GOYNIA, ROSTOCK OR CONSTANTA FOR THE PURPOSE OF EXCHANGING SCIENTIFIC INFORMATION. MORE FREQUENTLY MEETINGS TAKE PLACE AT SEA, IN THE FISHING REGIONS, WHERE CONFERENCES ARE HELD BY RADIO. THE FISHERMEN INFORM EACH OTHER OF THE FISHING CONDITIONS. AT PRESENT THERE IS A VERY COMPLEX ICE SITUATION IN THE REGION OF SOUTHERN LABRADOR WHERE A LARGE GROUP OF SOVIET AND POLISH VESSELS HAVE GATHERED. IT IS FOR THIS REASON THAT THE "PERSEY 3" ARRIVED IN THIS REGION AT THE REQUEST OF THE POLISH FISHERMEN. THE SCIENTISTS OF THE POLAR INSTITUTE ARE INVESTIGATING THE NATURE OF THE DISTRIBUTION OF ICE, MAKING FORECASTS OF ITS MOVEMENT, SEARCHING FOR SHOALS OF FISH IN THE MORE FAVORABLE AND SAFE FISHING AREAS AND COMMUNICATING THIS INFORMATION TO THE CAPTAINS OF THE POLISH SHIPS".

UNCLASSIFIED

USSR

LOGVINOV, V. B., KAS'YANENKO, S. I.

UDC 539.3.01

"On the Effect of the Orientation of the Axes of Elastic Symmetry on the Stressed State of an Anisotropic Wedge"

Tr. Novocherkas. politekhn. in-ra (Works of Novocherkassk Polytechnical Institute), 1972, Vol. 3, pp 105-117 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3V37)

Translation: The effect of the angle of orientation of the axes of elastic symmetry on the stressed state of a wedge was investigated using the example of an anisotropic wedge ($\alpha = 45^\circ$) loaded along the lower edge by a distributed transverse load which varies according to a quadratic parabolic law. The computational results, stress diagrams and graphs of the change in the corrections to the stresses as a function of the angle of orientation of the elastic properties are in full agreement with results of a study previously made for an anisotropic wedge ($\alpha = 26^\circ 33'$). It is shown that the stress state for anisotropic materials depends to a very considerable degree on the orientation of elastic properties. For certain directions of the axes of elastic symmetry the calculation can be conducted on the basis of the elementary theory of the resistance of materials, since the calculated stresses determined on the

USSR

LOGVINOV, V. B., KAS'YANENKO, S. I., Tr. Novocherkas. politekhn. in-ta,
1972, Vol. 3, pp 105-117

basis of the exact formulas of elasticity theory practically coincide in these cases with the results of the solution of the resistance of materials. As the angle α rises at the vertex of the wedge, the magnitudes of the greatest corrections increase since this region differs much more from a beam region. 6 ref. Authors' abstract.

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LOGVINOVICH, G.V.

HYDRAULIC JET FLOW OF AN IDEAL LIQUID
AND GAS-LIQUID MIXTURES

JPRS 57308
20 October 1972

Selected translations from Russian-language periodical Gidromekhanika, No 19, 1971, pp 3-9, 9-14, 14-24, etc.

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- a -

(X - USSR - H)

USSR

UDC 621.45:621.176

LOGVINOVICH, G. V., Institute of Hydromechanics of the Academy of Sciences of the Ukrainian Soviet Socialist Republic

"Performance of the Reaction Engine With Ejector Shroud"

Kiev, Gidromekhanika, No 19, 1971, pp 3--9

Abstract : With the help of general theorems of mechanics, an idealized analysis of the ejector shroud effectiveness of a steam-and-water reaction engine, operating in water, is presented. It is demonstrated that even theoretically by an idealized arrangement, an ejector shroud can increase the reactive thrust insignificantly only. This is demonstrated on a numerical calculation of the ejector shroud effect in the particular case of a steam-water jet with back pressure (30, 10, and 2 kg/cm²) and water supply to the ejector shroud under the pressure of 60 kg/cm² by 247 °C. By taking notice of friction, the installation of an ejector shroud is not expediently, it can result only in a decrease of the resulting thrust. Five illustr., eight formulas, one table.

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USSR

UDC: 532.5

LOGVINOVICH, G. V.

"Hydrodynamics of a Thin Flexible Body (Evaluating the Hydrodynamics of Fish)"

Uch. zap. Tsentr. aero-gidrodinam. in-ta (Scientific Notes of the Central Aerohydro-
dynamics Institute), 1970, 1, No 2, pp 11-17 (from RZh-Mekhanika, No 9, Sep 70,
Abstract No 9B517)

Translation: The paper investigates the hydrodynamics of a thin deformable body for the purpose of interpreting the mechanism of swimming in fish by the method of plane cross sections. Simple formulas are derived which can be used to evaluate thrust and expended power in the case of sinusoidal wave deformations of the axis of the body.

The hydrodynamic characteristics of fish are evaluated. The results of the theory are compared with experimental materials. Resumé.

1/1

1/2 027
UNCLASSIFIED
PROCESSING DATE--30OCT70
TITLE--OCCUPATIONAL DISEASES OF THE SKIN IN THE PRODUCTION OF ALUMINA -U-
AUTHOR--(03)--ANTONYEV, A.A., PODKIN, YU.S., LOK, S.M.
COUNTRY OF INFO--USSR
SOURCE--KLINICHESKAYA MEDITSINA, 1970, VOL 48, NR 3, PP 92-96
DATE PUBLISHED--70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--ALLERGIC DISEASE, INDUSTRIAL HYGIENE, DERMATOLOGY, ALUMINA
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAHE--2000/1449
STEP NO--UR/0497/70/048/003/0092/0096
CIRC ACCESSION NO--AP0125082
UNCLASSIFIED

2/2 027

CIRC ACCESSION NO--AP0125082

UNCLASSIFIED

PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHOR DESCRIBES THE CURRENT STATE OF THE PROBLEM ON INDUSTRIAL HYGIENE AND OCCUPATIONAL PATHOLOGY IN THE PRODUCTION OF ALUMINA FROM BAUXITE ACCORDING TO SOVIET AND FOREIGN LITERATURE SOURCES. UNDER STUDY WERE THE SANITARY AND HYGIENIC CONDITIONS OF WORK IN ALUMINA SHOPS OF THE PAVLODARSK PLANT; THE AUTHORS BRIEFLY DEPICT THE SCHEME OF THE TECHNOLOGICAL PROCESS. DURING STUDIES OF THE RAW MATERIAL AND INTERMEDIATE PRODUCTS OF THE ALUMINA PRODUCTION THE AUTHORS REVEALED THE PRESENCE OF CHROMIUM. DURING THE MEDICAL EXAMINATION OF 301 WORKERS IN 11 PERSONS (3.6PERCENT) THERE WERE DIAGNOSED OCCUPATIONAL DERMATITIS AND ECZEMA. SKIN TESTS IN 6 PERSONS REVEALED AN AUGMENTED SENSITIVITY TO CHROMIUM AND COBALT. A LATENT SENSITIZATION TO THE REFERRED TO ELEMENTS WAS DISCLOSED IN 14 CLINICALLY HEALTHY WORKERS. THUS, THE AUHTORS FOR THE FIRST TIME PROVED THAT THE DEVELOPMENT OF ALLERGIC OCCUPATIONAL DERMATOSIS IN THE PRODUCTION OF ALUMINA FROM BAUXITE IS CONDUCIVE TO THE SENSITIZING EFFECT OF COBALT. THE POSITIVE REACTION TO COBALT COULD, APPARENTLY, BE EXPLAINED BY THE CROSS OR GROUP SENSITIVITY TO THE CHROMIUM. THE AUTHORS PROPOSED A COMPLEX OF MEASURES FOR THE PREVENTION OF OCCUPATIONAL DISEASES OF THE SKIN. FACILTIY: INSTITUT GIGIYENY TRUDA I PROFZABOLEVANIY AMN SSSR, MOSKVA. FACILITY: KOZHNO-VENEROLOGICHESKIY INSTITUTE, INSTITUT GIGIVENV TRUDA I PROFRATOLOGII, SVERDLOVSK.

UNCLASSIFIED

USSR

UDC 621.438

LOKAY, V. I., and KUMIROV, B. A.

"Experimental Study of a Turbine Stage With Cooling Air Discharge Into its Flow-Through Section"

Kazan', Izvestiya VUZ, Aviatsionnaya Tekhnika, No 4, 1970, pp 93-100

Abstract: Results are given of an experimental study of the effect of cooling air discharged into the flow-through turbine section on its parameters. Experiments were conducted at the Turbine Laboratory of the Kazan' Aviation Institute (KAI) on a one-stage air turbine with cylindrical nozzle and impeller blades. Schematic diagrams of the experimental setup and of various blades are presented and described. The cooling air was introduced in the radial gap between the turbine case and blade tips, through slots in the rear edges of the nozzle and impeller blades, in front of the nozzle and into the axial gap between the nozzle and impeller grids. The results are presented in graphs and discussed. It is shown that in the case of a simultaneous discharge of air, cooling one or the other turbine element, into the flow-through section, a mutual compensation of the negative (into the blade edges) and positive (into axial gap) effects takes place in the range 1/2

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LOKAY, V. I., and KUMIROV, B. A., Izvestiya VUZ, Aviatsionnaya Tekhnika, No 4, 1970, pp 93-100

of real air expenditure (0.5 to 1% on disk cooling and 1.5 to 2% on nozzle cooling).

At simultaneous air discharge from nozzle and impeller blades, the prevailing effect is positive, because of an increase in air discharge through the nozzle blade edges. It is stated that the more detailed results of these experiments and their generalization on the basis of the similarity theory are the subject of a special article. 3 formulas, 6 figures, 8 references.

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1/2 031
UNCLASSIFIED
TITLE--STUDY OF THE HEAT EXCHANGE BETWEEN GAS AND THE ELEMENTS OF THE FLOW
THROUGH PART OF A GAS TURBINE UNDER CONDITIONS OF ROTATION -U-
AUTHOR--(021)-LOKAY, V.I., TRUSHIN, V.A.
PROCESSING DATE--30OCT70
COUNTRY OF INFO--USSR
SOURCE--MOSCOW, IZVESTIYA AKADEMII NAUK SSSR: ENERGETIKA I TRANSPORT, NO
1. 1970, PP 94-100
DATE PUBLISHED--70
SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, ENERGY CONVERSION
(NON-PROPULSIVE)
TOPIC TAGS--GAS TURBINE, BIBLIOGRAPHY, HEAT EXCHANGE, DIMENSION ANALYSIS,
GAS TURBINE ENGINE TEST
CENTRL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1999/1327
STEP NO--UR/0281/70/000/001/0094/0100
CIRC ACCESSION NO--AP0123285
UNCLASSIFIED

2/2 031

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0123285

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. RESULTS OF A STUDY ARE GIVEN ON HEAT EXCHANGE IN THE FLOW THROUGH SECTION OF A TURBINE WHEEL. A VALIDATION IS GIVEN FOR THE STRUCTURE OF A DIMENSIONLESS EQUATION WHICH TAKES INTO CONSIDERATION THE EFFECT OF MASS INERTIAL FORCES ON HEAT EXCHANGE (α SUBR). A SHORT DESCRIPTION IS GIVEN OF AN EXPERIMENTAL TURBINE ALONG WITH A PROCEDURE FOR CONDUCTING TESTS. RESULTS FOR UNIFYING TESTS ARE GIVEN FROM A STUDY OF THE EFFECT OF ROTATION ON HEAT EXCHANGE BOTH FOR LOCAL AND INTERMEDIATE VALUES OF (α SUBR) (IN THE LATTER CASE, BOTH FOR CALCULATED AND UNCALCULATED ANGLES OF ATTACK). MATHEMATICAL PROCESSING OF TESTS RESULTS USING METHODS OF DIMENSIONAL ANALYSIS MADE IT POSSIBLE TO OBTAIN A DIMENSIONLESS EQUATION FOR CALCULATING CORRECTIONS FOR THE EFFECT OF ROTATION ON HEAT EXCHANGE. .

UNCLASSIFIED

USSR

LOKHIN, B. I.

"Linear Orbit Perturbations of Artificial Satellites in Normal Earth Gravitational Field"

Byul. In-ta teor. astron. AN SSSR (Bulletin of the Institute of Theoretical Astronomy, Academy of Sciences USSR), 1970, 12, No 3, pp 282-292 (English summary) (from RZh-Mekhanika, No 1, Jan 71, Abstract No 1A44 by V. G. DeMin)

Translation: The intermediate orbit provided by the generalized problem of two dead centers is the basis for the developed theory of the disturbed motion of an artificial earth satellite. The general solution of this problem is used for the case of the dynamic symmetry of the earth about the equatorial plane. The general solution is taken in the form suggested by M. D. Kislik (without inversion of elliptic quadratures). Equations for osculating elements are obtained by the method of variation of the arbitrary constants composing the general integral. The equations for osculating elements are linearized, which makes possible calculation of first-order perturbations. An algorithm is indicated for the calculation of first-order perturbations in the introduced osculating elements.

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USSR

UDC: 621.373:535.06

DUBNISHCHEV, Yu. N., LOKHMATOV, A. I., KOSHCHAYEV, L. N., STOLPOVSKIY, A. A.,
UTKIN, Ye. N.

"Measuring the Linear Velocity of Motion of a Body by Using the Optical
Doppler Effect"

Leningrad, Optika i Spektroskopiya, Vol 34, No 3, Mar 73, pp 587-588

Abstract: Shown in the figure is a diagram of a device developed at the
Institute of Automation and Electrometry of the Academy of Sciences of the
USSR, Siberian Department, for using the Doppler shift of light to measure
local linear velocity. The device uses a cadmium laser on $0.44 \mu\text{m}$ with
5 mW of output power. A light beam from the laser 1 operating in the fun-
damental mode passes through iris 2 and is incident on beam splitter 3.
One of the split beams passes through iris 4 and is focused by lens 5 onto
the surface of disc 6 whose local linear velocity is to be measured. The
disc revolves with angular velocity ω . The second split beam is focused
by an identical lens 7 onto the surface of a polished glass plate 8 which
reflects it through the same lens back to a photodividing plate where it
acts as a reference beam, recombining with the signal beam scattered by

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USSR

DUBNISHCHEV, Yu. N. et al., Optika i Spektroskopiya, Vol 34, No 3, Mar 73, pp 587-588

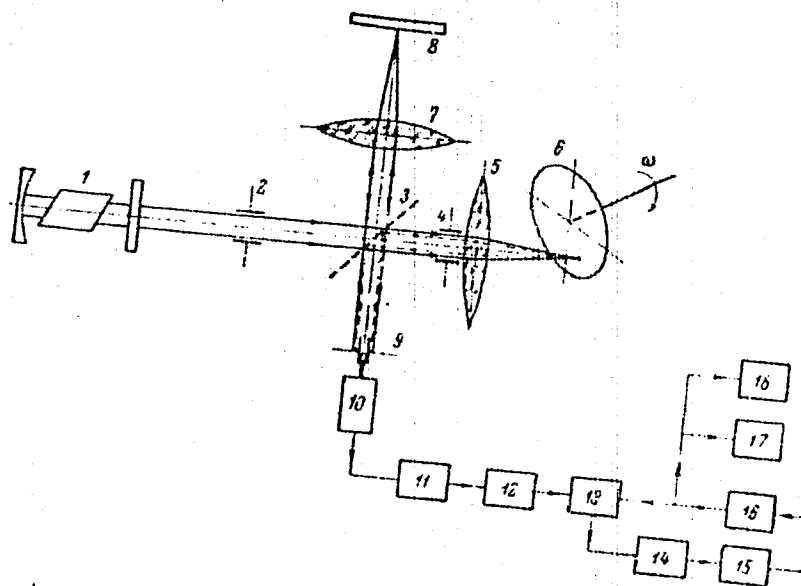
disc 6. The signal and reference beams are trimmed by iris 9 and interfere on the cathode of photomultiplier 10. The Doppler difference frequency from the load of this tube is sent through high-frequency filter 11 and clipper amplifier 12 to a tracking filter made up of phase detector 13, low-frequency filter 14, DC amplifier 15 and frequency-controlled oscillator 16. The signal from the oscillator is sent to spectrum analyzer 17 and digital frequency meter 18. The readings of the meter are proportional to the linear velocity of the disc in the region where the incident beam is focused. The Doppler spectrum of the signal can be analyzed on the spectrum analyzer. The proposed device has an accuracy of 0.2% and can be used for noncontact measurement of the linear velocity of mechanical motion in rolling mills, paper-making machines, etc.

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USSR

DUBNISHCHEV, Yu. N. et al., Optika i Spektroskopiya, Vol. 34, No 3, Mar 73,
pp 587-588



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USSR

UDC 621.375.82

LOKHOV, YU. N., MOSPANOV, V. S., and FIVEYSKIY, YU. D.

"Optical Surface Strength of a Transparent Dielectric"

V sb. Kvant. elektronika (Quantum Electronics -- Collection of Works), No 2(14), Moscow, "Sov. Radio," 1973, pp 71-74 (English summary) (from *RZh-Fizika*, No 10, Oct 73, Abstract No 10D897 from authors' abstract)

Translation: A dynamic theory is developed for the optical strength of a dielectric under the action of a nanosecond-long pulse. It is shown that an important role here is played by surface absorption, which makes the chief contribution to thermoelastic stresses as compared to striction and volume absorption. A mechanism is suggested for the destruction of the rear end face under the action of thermoelastic stresses. The power of the pulse that destroys the surface is calculated. Bibliography with 12 titles.

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USSR

UDC: 535.42

LOKHOV, Yu. N., MOSPANOV, V. S., FIVEYSKIY, Yu. D.

"Limiting Pulse Duration for Emission on the Second Harmonic in a KDP Crystal"

Moscow, Kvantovaya Elektronika, Sbornik Statey, No 2(8), 1972, pp 103-105

Abstract: When the second harmonic is generated by a powerful short light pulse, heating of the nonlinear crystal takes place in the laser beam channel, disrupting conditions of synchronism. An expression is found for the specific power of heat sources in a laser beam channel beyond which the efficiency of the nonlinear process is appreciably reduced. It is this effect which limits the duration of a pulse for a given pulse power. It is shown that the specific power of heat sources must not exceed a generalized parameter defined in terms of the optical and elastic parameters of a nonlinear crystal. A quantitative estimate for a KDP crystal gave a value of 10 J/cm^2 for the generalized parameter. The authors thank V.G. Dmitriyev for interest in the work. Two illustrations, bibliography of two titles.

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USSR

UDC 621.375.82

LOKHOV, Yu. N., MOSPANOV, V. S., FIVEYSKIY, Yu. D.

"Maximum Pulse Duration in the Generation of the Second Harmonic in a KDP Crystal"

V sb. Kvant. elektronika (Quantum Electronics -- Collection of Works), No. 2, Moscow, "Sov. radio", 1972, pp 103-105 (from RZh-Fizika, No 10, Oct 72, Abstract No 10D872)

Translation: Heating of a nonlinear crystal which leads to breakdown of synchronism conditions occurs in the channel of a laser beam in generating the second harmonic by a strong, short light pulse. An expression was obtained for the maximum power of heat sources in the channel of the laser beam which, if exceeded, considerably reduces the efficiency of the nonlinear process. This effect also limits its duration for a given pulse intensity. It is shown that the specific power of the heat sources need not exceed the value of the generalized parameter defined in terms of the optical and elastic parameters of the nonlinear crystal. A quantitative calculation made for the KDP crystal gave a value of the generalized parameter of 10 joule/cm^3 .
Authors abstract.

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USSR

SHAKHGILDYAN, V. V., LOKHVITSKIY, M. S.

UDC 621.391:519.2

"Shaping the a Posteriori Probability Density of Signal Parameters with Unknown a Priori Information"

Tr. Mosk. Elektrotekhn. in-ta svyazi (Works of Moscow Electrotechnical Communications Institute), 1970, vyp. 1, pp 108-111 (from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9A41)

Translation: This article contains an investigation of the problem of estimating the parameters of exponential distribution on the basis of an unclassified sampling as applied to the problem of receiving signals with a priori insufficiency. The formula is derived for the a posteriori distribution density of the signal. It is demonstrated that the desired reception problem can be solved with the help of an adaptive self-adjusting receiver. The bibliography has three entries.

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USSR

LOKSHIN, A. A.

UDC: 517.92

"Asymptotic Behavior of the Solutions to a First-Order Differential Equation"

Moscow, Vestnik Moskovskogo Universiteta--Matematika, Mekhanika,
No 4, 1973, pp 43-46

Abstract: This paper is based on an earlier article published in the same journal noted above (T. D. Ventsel', O funktsiyakh interpolatsii -- Interpolation Functions -- No 5, 1969) in which it was found that the sufficient condition that $f(t)$ be an interpolation function is

$$z' = z^2 + \frac{p}{p'} \left[\frac{p'}{p} + p'(h(x) - j) \right] z + \frac{p}{p'} K^{-p'/p} z^{1-p'/p},$$

where $h(x) = tf'(t)/f(t)$, $t = e^x$; K is a parameter which may be as large as desired; $j = 1, 2$; $(1/p) + (1/p') = 1 < p$, with this equation having the solution $z(x)$ capable of satisfying certain specified conditions. The present paper proves that the required solution to this equation exists if the condition

1/2

USSR

UDC: 517.92
 LOKSHIN, A. A., Vestnik Moskovskogo universiteta--Matematika,
mekhanika, No 4, 1973, pp 43-46

$$h(x) = \frac{tf'(t)}{f(t)} \rightarrow \alpha_0 \text{ as } t \rightarrow 0$$

is replaced by

$$-\frac{1}{p} + \delta_1 < \frac{tf'(t)}{f(t)} < \frac{1}{p'} - \delta_2,$$

where $\delta_1, \delta_2 > 0$ are sufficiently small. The equation given above is transformed to $z' = z^2 - q(x)z + rz^\alpha$, where $0 < m \leq q(x) \leq M < \infty$, $r = \text{const} > 0$ and arbitrarily small, and $\alpha = \text{const} < 1$. Solutions for this second equation are found. The author thanks S. A. Gal'pern and T. D. Ventsel' for their assistance.

1/2 016
UNCLASSIFIED
PROCESSING DATE--04DEC70
TITLE--ACUTE RENAL INSUFFICIENCY DURING ACUTE GLOMERULONEPHRITIS IN
CHILDREN AND ITS TREATMENT WITH HEMODIALYSIS -U-
AUTHOR--(05)-SOROKINA, M.I., BAYANDINA, S.A., DANILINA, Z.A., LOKSHIN,
A.M., VERKHOVSKIY, B.D.
COUNTRY OF INFO--USSR
SOURCE--PEDIATRIYA 49(2): 26-30. 1970.
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--KIDNEY FUNCTION, DIALYSIS, BLOOD, NEPHRITIS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605015/B10 STEP NO--UR/0546/70/049/002/0026/0030
CIRC ACCESSION NO--AP0140558
UNCLASSIFIED

2/2 016

CIRC ACCESSION NO--AP0140558

UNCLASSIFIED

PROCESSING DATE--04DEC

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TO FIND OUT THE MAIN CRITERIA OF ACUTE RENAL INSUFFICIENCY IN ACUTE GLOMERULONEPHRITIS IN CHILDREN, AN ANALYSIS WAS MADE OF THE TREATMENT OF 10 PATIENTS, 7 OF WHOM WERE SUBJECTED TO 15 COURSES OF HEMODIALYSIS. SIX PATIENTS RECOVERED, IN 1 CASE THE DISEASE BECAME CHRONIC, 3 PATIENTS DIED. ACUTE RENAL INSUFFICIENCY IN ACUTE GLOMERULONEPHRITIS WAS CHARACTERIZED BY OLIGO-ANURIA WITH HYPOSISTENURIA, THREATENING HYPERPOTASSEMIA AND AZOTEMIA, DECOMPENSATED METABOLIC ACIDOSIS AND HYPERHYDRATION. WHEN DETECTING THE SYMPTOMATICS OF ACUTE RENAL INSUFFICIENCY, PATIENTS SHOULD BE TRANSFERRED TO SPECIALIZED NEPHROLOGICAL DEPARTMENTS WHERE HEMODIALYSIS CAN BE DONE IF REQUIRED. FACILITY: I. M. SECHENOV 1ST MOSCOW MED. INST., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 539:3:534.1

LOKSHIN, A. Z.

"Stability of Reinforced Structures Under the Action of an Arbitrary Number of Forces"

V sb. Kratk. tezisy dokl. k Konf. po povrezhdeniyam i ekspluat. nadezhnosti sudovykh konstruktsiy, 1972 (Brief Subjects of Papers at the Conference on Failure and Operational Reliability of Ship Designs, 1972 -- Collection of Works), Vladivostok, 1972, pp 8-9 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3V313)

Translation: The stability of reinforced elastic systems under the action of forces with potential is discussed. The solution is based on substituting the limiting surface of the moments of inertia separating the regions of stability and instability of the elastic systems by a limiting plane.
N. A. Kulakov.

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Organometallic Compounds

USSR

UDC 542.944:546.14:547.258.11

NESMEYANOV, A. N., NOGINA, O. V., DROGUNOVA, G. I., and LOKSHIN, B. V.,
Institute of Hetero-Organic Compounds, Academy of Sciences USSR

"Bromination of Pentamethylcyclopentadienyltitanium Tribromide"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 2, 1973,
pp 406-410

Abstract: Studies were conducted on the reactivity of the titanium-cyclopentadienyl bond as influenced by the substituents on the cyclopentadienyl ring. Pentamethylcyclopentadienyltitanium tribromide (I) was obtained by dropwise addition, with mixing, of 8.8 g of acetyl bromide in 4 ml hexane to 7.7 g of $C_5(CH_3)_5Ti(OC_2H_5)_3$ in 7 ml of hexane. The crystals formed overnight represented a 91% yield (9.36 g) of $C_5-(CH_3)_5TiBr_3$, m.p. 242-250° (from hexane), and were dark-red. The synthesis and other experiments were conducted in an atmosphere of inert gas. I was characterized by IR, PMR, and NMR spectroscopy. The substitution of a single bromine atom for a hydrogen atom in a methyl group was achieved under the following conditions: 1) 2.34 g of bromine was added with mixing to 5 g of I in 250 ml of CCl_4 . The mixture was irradiated with a 220 watt Hg-quartz lamp for 10 h at 45-50° at a distance of ~50 cm; the yield of 1/2

USSR

NESMEYANOV, A. N., et al., Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 2, 1973, pp 406-410

$[C_5(CH_3)_4CH_2Br] TiBr_3(II)$ was 40%.2) II could also be obtained with an excess of bromine and longer exposure times in 48% yield. Bromination of I could also be obtained with N-bromosuccinamide in the presence of either azodiisobutyronitrile or UV irradiation; the respective yields were 13 and 28%. Introduction of even a single bromine atom into I markedly alters the reactivity of the titanium-cyclopentadienyl bond to nucleophilic reagents. Ethanol was capable of breaking the π -bound ring of II even after a few minutes at room temperature. The data indicate that in addition to breaking the $Ti-C_5(CH_3)_4CH_2Br$ bond, there occurs dehydrobromination of the organic fragment of the molecule which, apparently, results in fulvene formation.

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Acc. Nr.

AP0052538

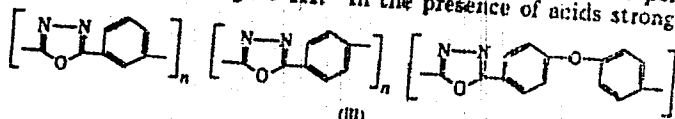
Abstracting Service:

CHEMICAL ABST. 5-70

Ref. Code:

41004572

101159a Kinetic dependences of polycyclization in polyphosphoric acid. Synthesis of high-molecular-weight poly-1,3,4-oxadiazoles. Krongauz, E. S.; Korshak, V. V.; Virnitskiy, Z. O.; Travnikova, A. P.; Sheina, V. E.; Lokshin, B. V. (Inst. Elementorg. ~~Soviet~~ Moscow, USSR). ~~Isokontin. Soedin.~~ Ser. A 1970, 12(1), 135-9 (Russ). The polycondensation-polycyclization of $\text{HO}_2\text{CRCO}_2\text{H}$ (R is 4,4'- $\text{C}_6\text{H}_4\text{OC}_6\text{H}_4$, 1,3- C_6H_4 , or 1,4- C_6H_4) with H_2NNH_2 , H_2SO_4 or H_2NNH_2 , H_3PO_4 (I) in polyphosphoric acid (II) gave III. In the presence of acids stronger



than II the mol. wt. of III was reduced. The reaction of $\text{HO}_2\text{CRCO}_2\text{H}$ with H_2NNH_2 in the absence of strong acids was slow. High temps. accelerated the reaction, but also reduced the mol. wt. of III. The highest yields and mol. wts. were obtained when instead of $\text{H}_2\text{O}_2\text{CRCO}_2\text{H}$ their K or Na salts were used. The optimum I-dicarboxylic acid salt ratio was 1:1.2; the optimum temps. were 160°, 180°, or 200° for 4- $\text{NaO}_2\text{CC}_6\text{H}_4\text{OC}_6\text{H}_4\text{CO}_2\text{Na}$ - 4, 4- $\text{NaO}_2\text{CC}_6\text{H}_4\text{CO}_2\text{Na}$, or 3- $\text{NaO}_2\text{CC}_6\text{H}_4\text{CO}_2\text{Na}$, resp. CPJR

REEL/FRAME
19821181

20.

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USSR

UDC: 629.19:533.6

LOKSHIN, B. Ya.

"Concerning the Gliding Mode in Motion of a Rapidly Rotating Solid in Air"

V sb. Nauch. konf. In-t mekh. Mosk. un-ta, Moskva, 22-24 maya 1972 g. Tezi-
sy dokl. (Scientific Conference. Institute of Mechanics, Moscow University,
Moscow, 22-24 May 1972, Abstracts of Papers), Moscow, 1972, p 24 (from RZh-
-Mekhanika, No 9, Sep 72, Abstract No 9B492)

Translation: It is assumed that as a rapidly rotating symmetric body moves
in air, the angle between its axis of symmetry and the total angular ve-
locity is small. In addition it is assumed that the characteristic ro-
tational velocity of the body about the axis of symmetry is large enough
so that the corresponding dimensionless parameter is a large parameter in
the system of equations which describes the motion of the body. Steady
motion of this body -- gliding -- is considered such that the axis of sym-
metry of the body is horizontal and moves with a constant velocity at a
fixed angle to the vertical. It is shown that when certain conditions are
satisfied in a given neighborhood, the gliding mode has a certain extremum
property. Sufficient conditions for extremality of stable gliding are de-
termined in the space of parameters of aerodynamic and geometric characteristics.

1/1

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USSR

UDC 531.355

LOKSHIN, B. Ya., Chair of Applied Mechanics, Moscow University

"On a Special Motion of a Rapidly Rotating Body in Air"

Vestnik Moskovskogo universiteta, Matematik, mekhanika, No 6, 1970, pp 93-98

Abstract: The motion of a planing body is considered where the axis of symmetry of the body is horizontal and does not change its orientation, whereas the velocity vector of the center of gravity is perpendicular to the axis of symmetry and maintains a constant angle with the vertical. The conditions of stability are ascertained for such a motion. The stability of the plane motion is proved under certain assumptions regarding aerodynamic coefficients.

1/1

Titanium

USSR

UDC 669.295.539.295

KOLACHEV, B. A., LOKSHIN, F. L., LYASOTSKAYA, V. S.,
SOVALOVA, Ye. G., and KOROBOV, O. S., Stupinsk Branch of Moscow
Aviation Technological Institute, Chair of the Science of Metals
and of Hot Working of Metals

"The Influence of Aluminum on the Structure and the Properties
of Ti+10%V Alloy"

Ordzhonikidze, Tsvetnaya Metallurgiya, No 2, 1973, pp 149-152

Abstract: The influence of Al additions on the structure and properties of
Ti+10% V alloy, possessing the α'' martensite structure after hardening from
the β -region, was experimentally investigated. The demonstrated change of
the distance between (020) and (110) lines of the α'' -phase indicates that the
rhombic distortion of the lattice decreases with increasing temperature of
hardening. At the same time, the rhombic lattice distortion of martensite in
the alloy containing 6% Al is higher than in the alloy with 3% Al. The compar-
ison of Ti+10%V+3%Al and Ti+10%V+6%Al curves shows that the increase of Al con-
tent in the alloy widens the interval of the heating temperature of hardening,
after hardening from which the α'' -phase is stabilized. In hardening the
Ti+10%V alloy, with increasing hardening temperature the phases $\alpha + \beta$, $\alpha + \beta$
+ ω , $\alpha + \beta + \omega + \alpha''$, $\alpha + \alpha''$ and α'' develop in succession; in Ti +10%V+3%Al and

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USSR

KOLACHEV, B. A., et al., Tsvetnaya Metallurgiya, No 2, 1973, pp 149-152

Ti+10%V+6%Al the phases $\alpha + \beta$, $\alpha + \beta + \alpha''$, $\alpha + \alpha''$, and α'' develop. Al prevents ω -phase formation in hardening and lessens the quantity of α' -phase developing in the aging of hardened alloys. Three figures, one table, eight bibliographic references.

2/2

- 33 -

Acc. Nr.: **AP0029333**

Ref. Code: UR 0297

PRIMARY SOURCE: Antibiotiki, 1970, Vol 15, Nr 1, pp 14-18

ISOLATION AND IDENTIFICATION OF ANTIBIOTIC 6604-4
Lokshin, G.B.; Tayg, M.M.; Kuzovkov, A.D.;
Solov'yeva, N.K.

National Institute for Antibiotics, Moscow

An actinomycetous culture 6604-4 isolated from Rumanian soils is described. It is classified as *Act. roseolilacinus* sp. nov. An antibiotic isolated from the culture fluid of the actinomycele was identified with actiliazic acid by its chemical, spectral and mass-spectrometric analyses.

REEL/FAME

19680905

USSR

BAKANINA, L. P.; KOZEL, S. M.; LOKSHIN, G. R. (Moscow Physicotechnical Institute)

"Photodetection of Coherent Radiation Scattered by a Moving Diffusion Surface
by a Receiver with a Finite Aperture"

Tomsk, Izvestiya Vysshikh Uchebnykh Zavedeniy: Fizika; July, 1971; pp 52-8

ABSTRACT: The question of the effect of the size and shape of the aperture of a receiver on the spectral properties of a photocurrent, with photodetection of scattered coherent radiation, is explored theoretically and experimentally. It is shown that this effect is substantially different in near and distant wave regions. Equations are obtained for the photocurrent spectra with various sizes of receiver apertures.

The article includes 24 equations and two figures. There are 8 references.

1/1

1/2 036 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--SPECTRAL CHARACTERISTICS OF A RANDOM INTENSITY FIELD OBTAINED
DURING SCATTERING OF COHERENT RADIATION ONTO A MOVING DIFFUSE SURFACE
AUTHOR--(03)-ANISIMOV, V.V., KOZEL, S.M., LOKSHIN, G.R.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, RADIOTEKHNIKA I ELEKTRONIKA, NO 3, 1970, PP 539-545

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--LASER RADIATION, LIGHT SCATTERING, LINE INTENSITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--1999/1350

STEP NO--UR/0109/70/000/003/0539/0545

CIRC ACCESSION NO--AP0123308

UNCLASSIFIED

2/2 036

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0123308

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS PRESENT THE RESULTS OF AN EXPERIMENTAL STUDY OF CERTAIN STATISTICAL PROPERTIES OF A RANDOM INTENSITY FIELD PRODUCED DURING SCATTERING OF LASER RADIATION BY A MOVING DIFFUSE SURFACE.

UNCLASSIFIED

AP0032802 INTERNAT. AEROSPACE ABST 370 21R0051

A70-17810

SPATIOTEMPORAL STATISTICAL PROPERTIES OF COHERENT RADIATION SCATTERED BY A MOVING DIFFUSE REFLECTOR (O PROSTRANSTVENNO-VREMENNYKH STATISTICHESKIKH SVOISTVAKH KOGERENTNOGO IZLUCHENIYA, RASSEIANNOGO DVIZHUSHCHIMSIA DIFFUZYNYM OTRAZHATELEM).

V. V. Anisimov, S. M. Kozel, and G. R. Lokshin.

Optika i Spektroskopiya, vol. 27, Sept. 1989, p. 483-491, 5 refs. In Russian.

Spatiotemporal statistical description of the random intensity field arising during diffuse scattering of coherent radiation by a moving surface. Using correlation theory, the spatiotemporal correlation functions for the near and far wave zones are obtained. It is shown that the condition that the field be frozen is satisfied in the near zone. Certain methods of measuring the transverse velocities of a diffuse reflector, based on an analysis of the statistical properties of scattered radiation, are discussed.

A.B.K.

19701146

USSR

UDC 669.725:620.172.2

KHENKIN, M.L., LOKSHIN, I.KH., LEVINA, N.K., and AKOPOV, I.A.

"Increasing the Resistance of Beryllium to Microplastic Deformations by Thermo-cyclic Treatment

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 7, 1971, pp 50-52

Abstract: A study was made of a method of improving beryllium's resistance to microplastic deformations by using a stabilizing treatment (t t s c) consisting of several cycles of cooling (-50° , -72° , and -196°C) followed by low-temperature heating ($+100^{\circ}$ and $+400^{\circ}\text{C}$). The results show that the relaxation stability increases 2 times with a temperature interval from -50° to $+100^{\circ}\text{C}$, and increases further with an increasing temperature interval. The efficiency of treatment with an increasing number of cycles, practically speaking, does not increase after three cycles. Macro stresses also decrease with increasing relaxation stability. The observed increase in beryllium resistance to microplastic deformations is explained by processes of highspeed relaxation of micro stresses occurring at thermal cycling in overstressed microvolumes and by stabilization of thin structure in these volumes. It is assumed that the effect of the described treatment may be obtained on other metals and alloys with hexagonal lattice.

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USSR

UDC 620.172.22

ABRAMOV, V. I., LOKSHIN, I. Kh., and PISKAREV, V. D.

"Experimental Comparison of Various Methods for Determining the Limit of Elasticity"

Moscow, Zavodskaya Laboratoriya, Volume 6, 71, p 120

Abstract: Metal plates were tested for elasticity by bending, using different techniques. A special electrical apparatus invented by Piskarev (Declaration No. 251231) was used to measure residual deformation with high accuracy. Results indicated good agreement among the various standard methods used; the values obtained for limit of elasticity were quite close, even though the procedures differed significantly.

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Beryllium

USSR

UDC: 669.725:621.785.375

LOKSHIN, I. Ka.

"Heat Treatment of Beryllium to Lower Internal Stresses"

Moscow, Metallovedeniye, No 5, May 70, pp 61-62

Abstract: It has been previously stated that annealing at 750-800°C will almost completely remove residual internal stresses in beryllium. However, when beryllium is heated above 700°C it loses its work hardened condition. Therefore, one must understand the kinetics involved in lowering macrostresses in beryllium at temperatures below the recrystallization point.

Commercial beryllium samples, having the same bend strength, were used where the initial stress applied was 8 kg/mm². Lowering of stresses was determined as the ratio of the actual stress preserved in the sample over a 24-hour period at room temperature to the stress at higher temperatures. At 600°C there is complete removal of stresses after two hours at that temperature. The stress remaining was only 2% higher than the initial stress. Annealing at a lower temperature was less effective. After annealing at 400 and 190°C, stresses were reduced by 30 and 20%, respectively. After annealing at 100°C, stresses decreased by only 1-2%. With thermal cycling between -196 and +400°C or between -70 and 400°C (three cycles), reduction of stresses was much greater than after heating only at 400°C. More than three thermal cycles leads to no appreciable effect on reduction of stresses.

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USSR

LOKSHIN, I. Kh, Metallovedeniye, No 5, May 70, pp 61-62

The reduction of stresses is believed to be due to the interaction of micro- and macrostresses and their relaxation.

2/2

USSR

UDC: 669.14.018.252.3:629.789

LOKSHIN, L. F., KUPALOVA, I. K., LENYASHIN, V. B.

"News in the Technology of the Thermomechanical Treatment of High Speed Steels
Metallovedeniye i Termicheskaya Obrabotka Metallov, No 9, 1973, pp 31-34.

Abstract: This work describes a study of the influence of low and high temperature heat treatment and mechanical working modes on the strength, ductility, red hardness and cutting ability of drills, as well as the fine structure and physical properties of high speed steels of three groups: tungsten steels (R12 and R18), tungsten-molybdenum steels (R6, M5) and tungsten-molybdenum-cobalt steels (R6MSK5). All steels were subjected to low temperature treatment with deformation at 550-600° C; in addition types R6M5 and R6MSK5 steels were subjected to high temperature treatment with deformation at 1000-1100° C. The strength and ductility were found to increase with increasing deformation, maximum values of strength and ductility corresponding. The study of the fine structure showed that defects formed during deformation of austenite at 1000-1100° C, significantly increasing the diffusion mobility of the carbon in the austenite, cause the formation of tiny alloy carbides immediately during deformation or during cooling after deformation. The results produced allow heat and mechanical treatment to be

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USSR

- Lokshin, L. F., Kupalova, I. K., Lenyashin, V. B., Metallovedeniye i Termicheskaya Obrabotka Metallov, No 9, 1973, pp 31-34.

recommended for high speed steels, particular high temperature heat and mechanical treatment for R6M5 steel.

2/2

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Aluminum and Its Alloys

USSR

UDC 669.71.053.4

ARONZON, V. L., BERKH, V. I., LEVIN, M. V., LOKSHIN, R. G.

"Automatic Control of Technological Processes of Alumina Production"

Avtomatiz. Proizv. Protsessov. Tsvet. Metallurgii [Automation of Production Processes in Nonferrous Metallurgy -- Collection of Works], Ordzhonikidze, "Ir" Press, 1971, pp 73-75, (Translated from Referativnyy Zhurnal, Metallurgiya, No 5, 1972, Abstract No 5 G212 by G. Svodtseva).

Translation: In developing algorithms for control of the hydrochemical cycle of Al_2O_3 production from bauxite in the area of the nominal mode, based on the shortage of Al_2O_3 , a control strategy was developed calling for two possible operating modes of the automated control system: the mode of independent control of individual sectors of the hydrochemical cycle and the mode of centralized control. In both modes, control is conducted by a two-stage system. In the independent control mode, a universal computer checks the condition of production by cyclical interrogation of the primary parameters. A special algorithm has been developed, allowing timely determination of the location and reasons for disruptions in the technological mode. Algorithms for optimization of the hydrochemical cycle of production of Al_2O_3 by the Bayer method have been developed, as well as algorithms for optimization of individual conversions in

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USSR

UDC 669.71.053.4

ARONZON, V. L., BERKH, V. I., LEVIN, M. V., LOKSHIN, R. G., Avtomatiz. Proizv. Protssosov. Tsvet. Metallurgii, Ordzhonikidze, "Ir" Press, 1971, pp 73-75.

alumina plants, based on mathematical models of the technological processes being controlled.

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USSR

UDC 669.71.053.4

ARONZON, V. L., GANZBURG, YA. D., LEVIN, M. V., LOKSHIN, R. G., FINKEL'SHTEYN, L. I.

"Algorithmization of Control of the Section for Preparing the Charge of the Alumina Shop at a Nepheline Plant"

Tr. Vses. n.-i. i proyekt. in-ta alyumin., magn. i elektrod. prom-sti
(Works of the All-Union Scientific Research and Planning and Design Institute of Aluminum, Magnesium and Electrode Industry), 1970, No 70, pp 28-34 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4G136)

Translation: Principles are formulated for a production raw material input control which insures stabilization and synchronization of material flows with observation of the required quality of the charge obtained. Control algorithms for individual sections are developed on this basis: bins, mills, a repulping machine, and a correction unit. There is 1 illustration.

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USSR

UDC: 536.24:532.54

BARULIN, Yu. D., VIKHREV, Yu. V., DYADYAKIN, B. V., KOBELIAKOV, A. N.,
KON'KOV, A., LOKSHIN, V. A., SINITSYN, I. T., Editorial Staff of Inzh.
fiz. zh., Academy of Sciences of the Belorussian SSR

"Heat Exchange During Turbulent Flow of Water With Supercritical Parameters
of State in Vertical and Horizontal Pipes"

Teplotodacha pri turbulentnom techenii v vertikal'nykh i horizontal'nykh
trubakh vody sverkhkriticheskikh parametrov sostoyaniya (cf. English above),
Minsk, 1970, 16 pp, ill. (No 2315-70 Dep.) (from RZh-Mekhanika, No 4, Apr
71, Abstract No 4B739 DEP)

Translation: The paper presents the results of an experimental study of
heat transfer during rising, descending and horizontal flow of water with
supercritical parameters of state in circular tubes. The experimental
values of the coefficients of heat transfer were found in the following
ranges of working parameters: pressure 225-265 bars; mass flowrates 480-
5000 kg/cm²·s; Reynolds number (12.5-450)·10³; specific thermal load 0.2-
6.5 MW/m²; flow temperature +50-500°C; wall temperature +60-750°C; inside

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SARULIN, Yu. D. et al., Teplootdacha pri turbulentnom techenii v vertikal'nykh i horizontal'nykh trubakh vody sverkhkriticheskikh parametrov sostoyaniya, Minsk, 1970 (No 2315-70 Dep.)

diameter of the tubes $(3, 8, 20) \cdot 10^{-3}$ m; relative length up to 300. Experimental data are obtained on the effect which the direction of motion of the liquid flow has on heat exchange in the supercritical region. A study is made of the nature of the change in the coefficient of heat exchange on the initial section and around the perimeter of horizontal tubes. Bibliography of twelve titles. Authors' abstract.

USSR

UDC: 621.396.677.833

DEMENT'YEV, V. P., KUZ'MIN, I. V., LOGINOV, I. V., LOKSHIN, V. L., YAMPOL'SKIY, V. G.

"A Passive Radio Relay Unit"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 22, 1970, Soviet Patent No 275171, Class 21, filed 19 Feb 69, p 42

Abstract: This Author's Certificate introduces a passive radio relay unit made up of a reflecting array with curvilinear edges. As a distinguishing feature of the patent, the mean effectiveness of the unit is increased, and especially the effectiveness in the case of subrefraction by making the upper and lower edges of the array conform to different parabolic curves with a common focal axis and a high ratio of the focal parameters of the parabolic curves, which may, for instance, be equal to one hundred.

1/1

Instrumentation and Equipment

USSR

UDC 621.791.72.03

PATON, B. YE., Academician, NAZARENKO, O. K., LOKSHIN, V. YE.,
Candidates of Technical Sciences, ZUBCHENKO, YU. V. and AKOP'-
YANTS, K. S., Engineers, Institute of Electric Welding imeni Ye.
O. Paton, Academy of Sciences Ukrainian SSR

"Classification of Electron-Beam Welding Guns"

Kiev, Avtomaticheskaya Svarka, No 12 (249), Dec 73, pp 34-41

Abstract: Electron-beam welding guns have been classified and diagrams have been constructed for the suggested classification as well as the area of technological possibilities for standard guns. The principle of constructing these guns has been described. As a result of the investigations a device has been created for shaping the accelerating voltage on electrodes using a column of water. Extended exploitation has confirmed the high degree of operating reliability. The basic models of standard welding guns have been thoroughly tested both under laboratory and industrial conditions and are recommended for commercial production. The article contains 7 figures, 3 tables, and 5 bibliographic references.

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USSR

UDC: 621.791.947

NAZARENKO, O. K., KAYDALOV, A. A., AKOP'YANTS, K. S., LOKSHIN, V. Ye.

"Periodicity of Transfer of Metal During Cathode Ray Welding"

Kiev, Avtomaticheskaya Svarka, No 8, Aug 73, pp 75-76.

Abstract: The following mechanism is proposed for metal transfer during cathode-ray welding. The primary force acting on the liquid metal is the recoil reaction arising upon partial evaporation of the metal by the electron beam. Since the recoil reaction is directed perpendicular to the surface of the melted metal, its motion along the walls of the channel is possible only when the surface is curved so that a sufficient tangential component of recoil reaction arises. Curvature of the surface of the melted metal occurs as follows. At a certain film thickness of liquid metal on the leading wall of the channel, waves arise on the free surface of the film, the amplitude of the waves increasing as film thickness increases. At a certain critical thickness, the area of the curved surface is sufficient for the recoil reaction along the forward wall to cause movement of a given curve into the depth of the channel, capturing the main mass of the melted metal located below. The amplitude of the wave increases, accelerating the

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USSR

Nazarenko, O. K., Kaydalov, A. A., Akop'yants, K. S., Lokshin, V. Y.e, Kiev, Avtomaticheskaya Svarka, No 8, Aug 73, pp: 75-76.

movement. This wave is the main motive force of metal transfer.

USSR

UDC: 621.791.72

PATON, B. Ye., NAZARENKO, O. K., ~~LOKSHIN, V. Ye.~~, AKOP'YANTS, K. S.,
Ye. O. Paton Electric Welding Institute imeni Ye. O. Paton, Academy of
Sciences, UkrSSR

"Features of Cathode Ray Welding in Various Spatial Positions"

Avtomaticheskaya Svarka, No 6, June 1972, pp 1-4

Abstract: The present study was designed to determine the effect of joint orientation relative to the direction of the force of gravity on cathode ray welding with a sharply focussed beam for metals up to 30-40 mm thick without finishing of edges. Experiments were performed on stainless steel specimens using a type U-212 cathode ray welder with U-250A power supply and U-530M welding gun in a vacuum of $5 \cdot 10^{-5}$ - $1 \cdot 10^{-4}$ mm hg. The direction of the force of gravity affects seam strength only when welding in the "ceiling" position. The stability of the welding bath in this position depends to a great extent on the viscosity of the liquid metal, rate of crystallization, and relationship between surface tension across the outside of the bath and pressure produced by the weight of the liquid metal in the bath. These factors are of little significance for horizontal seams welded onto a vertical surface. For the metal in question, the maximum melting depth, beginning at which drops are formed when

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USSR

PATON, B. Ye., et al., Avtomaticheskaya Svarka, No 6, June 1972, pp 1-4

seams are welded across a ceiling, is inversely proportional to melting width. The width can be decreased by increasing the welding rate and decreasing the radius of the electron beam. Series-produced equipment with beam powers of 15 kw and mean diameter 0.5 mm can achieve stable melting of seams to up to 20 mm deep.

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-USSR

PAISOV, I. V., AVRAAMOV, YU. S., LOKSHINA, L. I., EL'KHONES, N. M., and CHIKHLADZE, K. V., Moscow Institute of Steel and Alloys

"Influence of Germanium on the Structure and Properties of Steel"

Moscow, IVUZ Chernaya Metallurgiya, No 3, 1971, pp 126-128.

Abstract: Steel with moderate and low carbon contents was produced in an induction furnace. The chemical compositions of the steels studied were, %:

C	Si	Ge	Mn	S	P
0.44	1.01	-	0.69	0.023	0.0096
0.44	-	1.00	0.60	0.017	0.0067
0.09	3.18	-	0.35	0.026	0.0034
0.057	-	3.18	0.73	0.026	0.0063
0.09	2.39	-	0.30	0.027	0.0054
0.067	-	2.24	0.84	0.027	0.0063

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USSR

PAISOV, I. V., et al., IVUZ Chernaya Metallurgiya, No 3, 1971,
pp 126-128

The steel alloyed with germanium has lower strength but much higher ductility than silicon steel. The sharp increase in ductility of this steel after annealing may be found very valuable in the production of thin sheet transformer and dynamo steel.

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- 65 -

USSR

PAISOV, I. V., AVRAAMOV, YU. S., LOKSHINA, L. I., EL'KHONES, N. M., and CHIKHLADZE, K. V., Moscow Institute of Steel and Alloys

"Influence of Germanium on the Structure and Properties of Steel"

Moscow, IVUZ Chernaya Metallurgiya, No 3, 1971, pp 126-128.

Abstract: Steel with moderate and low carbon contents was produced in an induction furnace. The chemical compositions of the steels studied were, %:

C	Si	Ge	Mn	S	P
0.44	1.01	-	0.69	0.023	0.0096
0.44	-	1.00	0.60	0.017	0.0067
0.09	3.18	-	0.35	0.026	0.0084
0.057	-	3.18	0.73	0.026	0.0063
0.09	2.39	-	0.30	0.027	0.0054
0.067	-	2.24	0.84	0.027	0.0063

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USSR

PAISOV, I. V., et al., IVUZ Chernaya Metallurgiya, No 3, 1971,
pp 126-128

The steel alloyed with germanium has lower strength but much higher ductility than silicon steel. The sharp increase in ductility of this steel after annealing may be found very valuable in the production of thin sheet transformer and dynamo steel.

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- 65 -

Acc. Nr:

AP 0036759

Abstracting Service:
CHEMICAL ABST. 4-70

Ref. Code:

UR 0068

6

78550k Preparation of mesitylene and durene by the isomerization and disproportionation of pseudocumene. Kolyandr, L. Ya.; Privalov, V. E.; Fomenko, G. M.; Nikitina, A. G.; Lokshina, L. G.; Kocherzhev, V. A.; Khvatkov, N. M.; Krut'kova, A. P.; Bilym, L. M.; Grebinnik, Z. G. (Kadiev, Kokshim. Zavod, Kadievka, USSR). *Koks Khim.* 1970, (1), 33-40 (Russ). 1,2,4-Me₃C₆H₃ (I) of 90-5% purity was prepd. by rectifying coke chem. solvents (20-35 and 10-20% Me₃C₆H₃, 4-6 and 3-5% m + p-EtC₆H₄Me, 15-17 and 10-12% 1,3,5-Me₃C₆H₃ (II), 1-1.2 and 0.7-0.9% o-EtC₆H₄Me, 16-18 and 12-14% I, 1-2 and 2-3% 1,2,3-Me₃C₆H₃, 2-6 and 1-3% satd. hydrocarbons, and 0 and 2-3% unsatd. compds.) on columns having 50 theoretical plates at a reflux no. of 60-100. Isomerization and disproportionation in the presence of 30% of an AlCl₃-I complex at 127° for 3 hr in exptl. app. yielded 4.00% C₆H₆-PhMe-satd. compds., 17.27% Me₃C₆H₃, 17.02% II, 35.09% I, and 10.71% durene (III). Yields in plant runs were similar. Rectification of the II fraction on a lab. column having 75 theoretical plates at a reflux no. of 80-100 yielded II of 97.5% purity in 39.24% yield. After rectification to increase III concn. to 45.94% in the III fraction, recrystn. at 5 to -18° yielded III of ~82% purity and further recrystn. with 35% PhMe gave III of ~97% purity in ~85% yield (17% selectivity from I and 1.6% from the coke chem. solvent). Lucile S. Davison

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REEL/FRAME

19721671

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LOKSHINA, L. V.

UDC: 362.11:65.012.2
SOME SUGGESTIONS FOR CALCULATING ANNUAL MEAN BED OCCUPANCY IN MUNICIPAL HOSPITALS

(Articles by N.P. Boytsov, L.V. Lokshina, All-Union Scientific Research Institute of Social Hygiene and Public Health Organization named N.A. Semashko (Professor I.D. Bogatyrev, director), Moscow; Moscow, Sovetskoye Zdravookhraneniye, Russian, No 3, 1972, submitted 16 August 1971, pp 15-19)

In the Directives of the 24th Congress of the CPSU pertaining to the five-year plan of development of the USSR economy in 1971-1975, it is indicated that a most important prerequisite for creating the material and technical base for communism is implementation of comprehensive intensification of the national product and increase in its effectiveness. Improvement of the system of planning and management of the economy under modern conditions implies the renewal and organization of the base standards in all of its branches. This will provide for the changeover to broad use of economic and mathematical methods and computer technology which, in turn, will expedite receipt and processing of information, development of different plan variants and determination of optimum planning decisions.

In the USSR, public health planning, which is an inseparable element of planning of the nation's entire economy should provide for the most rational and efficient use of financial and material resources as well as personnel at the disposal of public health agencies and institutions. In this connection, a large and important task emerges which deals with working out the standards base in public health, determination of the scope and nature of information for the purposes of management at different levels, determination of the set of indices of quality and efficiency of different types of public health agencies and institutions.

Substantiation of a standard such as the mean annual hospital occupancy becomes quite serious in increasing the efficiency of using the material base of public health and, in particular, the available hospital beds. This index is also needed for establishment of the requirements for beds for different special purposes.

Published for the purpose of discussion.

Cardiovascular Diseases

USSR

UDC 616.127-005.8:613.13+312.2]-02:
613.13

GOROKHOVSKIY, B. I., DMITRIYEV, A. A., LOKSHINA, P. I., and REMIZOV, G. A.,
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Moscow

"Influence of Environmental Factors on Morbidity and Mortality Rates for
Myocardial Infarct"

Moscow, Sovetskaya Meditsina, No 4, 1971, pp 105-109

Abstract: Analysis of over 5,000 cases of myocardial infarct and acute
coronary insufficiency in Moscow revealed a definite correlation between the
morbidity and mortality rates of these diseases and various meteorological and
geophysical factors. Sharp changes in atmospheric pressure in winter resulted
in a rise in the mortality rate the same day to 194% of the seasonal mean. A
lowering of the mean diurnal temperature in summer by 5° or more increased
mortality on the 2d day to 150% of the seasonal mean. Magnetic storms with a
sudden onset increased mortality from acute coronary insufficiency and
myocardial rupture to 165% three days later regardless of the time of year.
Abrupt changes in temperature, solar activity, and so forth are believed to

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GOROKHOVSKIY, B. I., et al., Sovetskaya Meditsina, No 4, 1971, pp 105-109

impair the neuroregulatory apparatus and/or alter vascular tone, resulting in regional (coronary, cerebral) circulatory disorders. (The authors' analysis was based on the phase matching method whereby the day the phenomenon under study occurs is taken as zero, the preceding days as -1, -2, etc. and the subsequent days as +1, +2, etc.).

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USSR

UDC: 539.4

SHORR, B. F., LOKSHTANOV, Ye. A., KHALATOV, Yu. M., Moscow

"One Possible Approach to Probabilistic Evaluation of the Vibration Strength of Turbine Parts"

Kiev, Problemy Prochnosti, No 11, Nov 72, pp 11-14.

Abstract: A probabilistic estimate is calculated of the vibration strength of turbine machines by means of the strength reserve calculated from the statistical extreme values of applied and rupture variable stresses, based on measurement of mean values and dispersions considering the volume of the experimental data available. The qualitative difference of the application of strength reserves using statistically maximum stresses in place of the maximum measured stresses consists first of all in the utilization not only of the maximally stressed parts, but of all parts for which tensometry is performed, and in the possibility of equally reliably estimating the strength reserves by measurement of stresses on various numbers of parts, as well as estimation of the strength reserve on the basis of the statistically maximum stresses, stimulating an increase in the volume of experimental information on the stress of blades for determination of vibration strength.

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UDC 002.513.5:676.815.2:547

PORTYANSKIY, A. YE., LOKSINA, N. T., TASHPULATOV, YU. T., MAMEDOVA, V. M., and MEKHTIYEV, S. I.

"The Use of Punched Cards for the Solution of Specific Problems in IR Spectroscopy"

Moscow, Nauchno-Tekhnicheskaya Informatsiya, Seriya 1 -- Organizatsiya i Metodika Informatsionnoy Raboty, No 2, 1970, pp 28-30

Abstract: The article describes a direct code developed by the authors for cataloging data and solving specific spectrochemical problems which occur in the practical analysis of aliphatic nitriles ($C \leq 10$). A standard K5 two-row edge-notched card is used. To facilitate the coding, a stencil (tracing paper) with code scheme and elements (some of them borrowed from the DMS system) is pasted onto each punched card. The horizontal rows of perforations are designed for recording (all) absorption frequencies; and the vertical rows, for structure coding. The code scheme is supposed to reflect the relative arrangement of groups

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PORTYANSKIY, A. YE., et al., Nauchno-tekhnicheskaya Informatsiya, Seriya 1 -- Organizatsiya i Metodika Informatsionnoy Raboty, No 2, 1970, pp 28-30

with respect to the CN group. The code is suitable for the cataloging of IR spectra, detailed coding of the structures of various compounds, as well as for finding "structure-spectrum" correlations.

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USSR

UDC 532.525.621-226.3

DEYCH, M. E., Doctor of Technical Sciences, LAZAREV, L. Ya., Candidate of Technical Sciences and LOKTEV, A. L. (Moscow Power Institute)

"On Meridional Shaping of Turbine Supersonic Nozzle Grid"

Moscow, Teploenergetika, No 3, March 72, pp 61-64

Abstract: A three-dimensional flow in a meridionally shaped nozzle grid operating steadily in a wide range of M is analyzed. In this grid the interblade passage is convergent in the cylindrical cross section, and divergent in the meridian cross section. It is assumed that a medium passage cross section ensures an efficient operation at near and supersonic velocities, while the divergent passage allows to obtain small losses at high supersonic velocity. This assumption was experimentally substantiated by tests conducted on a meridionally shaped grid C-9012BM of low height. The experimental results are presented in the form of pressure distribution, variation of the flow exit angle and of the coefficient of total losses. They show that this grid type is between the convergent and divergent types presenting moderate and practically constant losses in the Mach range of $M=0.6$ to 1.8.

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TITLE--EPR STUDY OF ANTHRACENE ADSORPTION ON NICKEL OXIDE SILICON DIOXIDE
CATALYSTS -U-
AUTHOR-(02)-SLINKIN, A.A., LOKTEV, M.I.
COUNTRY OF INFO--USSR
SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (4), 959
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--EPR SPECTRUM, ANTHRACENE, NICKEL OXIDE, SILICON DIOXIDE,
CATALYST, ADSORPTION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3008/1004 STEP NO--UR/0062/70/000/004/0959/0959
CIRC ACCESSION NO--AP0138032
UNCLASSIFIED